McGREGOR, SHEA & DOLINER
ATTORNEYS AT LAW, P.C.
141 TREMONT STREET - SUITE 200
BOSTON, MASSACHUSETTS 02111
(617) 338-6464
FAX (617) 338-0737

GREGOR I. McGREGOR
JOHN F. SHEA*
HARLAN M. DOLINER
GLENN A. WOOD
ROBERT A. FASANELLA
LOIS J. BRUINOOGE
NANCY KAPLAN

CAROLYN W. BALDWIN**
DENNIS H. ESPOSITO***
Of Counsel

*Admitted in ME also
**Admitted in NH only
***Admitted in RI also

RALPH R. WILLMER
DONNA J. VORHEES
PETER J. FEUERBACH
SUSAN A. BRENT

Environmental Planners

April 1, 1991

BY HAND DELIVERY

Homer Russell, Assistant Director
for Urban Design and Development
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

RE: Draft Project Impact Report For The Harvard Club's Proposed 430-Car Parking Garage, Newbury Street

Dear Mr. Russell:

On behalf of the Windsor Place Condominium Association ("Windsor Place"), we respectfully submit these comments on the Harvard Club's February, 1991 Draft Project Impact Report ("DPIR"). Attached to our comments is a technical critique of the DPIR, prepared by Mr. David Friend of Chas. T. Main, Inc.

Despite the Harvard Club's efforts to ensure that the DPIR not only satisfied the Boston Redevelopment Authority's ("BRA") Scoping Determination but also the neighborhood's concerns, the DPIR remains seriously deficient. The DPIR reads as if the Harvard Club expects to receive the discretionary approvals it desires without first demonstrating that its proposal meets the regulatory standards for granting such approvals. The Harvard Club has a long way to go justifying these approvals given Charles T. Main's identification of 1,300 parking spaces available to the Harvard Club at the Club's own expected peak arrival time of 6:30-7:30 p.m. We therefore ask the BRA to issue an Adequacy Determination which disapproves the DPIR and requires the Harvard Club to respond to each of our comments in addition to the concerns and questions of the BRA.

INTRODUCTION

Windsor Place first learned of the Harvard Club's 430-car garage proposal in the Spring of 1990. Since that time, Windsor Place submitted DPIR scoping comments dated June 19, 1990 and draft DPIR deficiency comments dated November 7, 1990 to the BRA. Windsor Place also voiced its preliminary concerns with the

Added letter is at end of text

project at a BRA-sponsored community meeting on June 11, 1990 and met with Harvard Club representatives on September 24, 1990. At this later meeting, Windsor Place reiterated its scoping comments as well as general concerns about the garage proposal. Despite the assurances of the Harvard Club representatives to the contrary, the DPIR addresses none of these comments or concerns. The Harvard Club did not even notify Windsor Place when it submitted its formal DPIR to the BRA. For these reasons, Windsor Place seriously questions the Harvard Club's commitment to addressing neighborhood concerns. The Club's proposed 4-story notch cut alternative mentioned in the DPIR does virtually nothing to alleviate adverse traffic, air pollution and shading impacts. Instead the DPIR minimizes or ignores adverse impacts to its neighbors.

THE DPIR FAILS TO MEET THE REQUIREMENTS OF THE AUGUST 24, 1989 BRA SCOPING DETERMINATION

The DPIR fails to include all information and analyses required by the August 24, 1989 BRA Scoping Determination.

Parking Garage Alternative 1 is Summarily Dismissed in the DPIR

On page 2 of the Scoping Determination, the BRA requires evaluation of a garage alternative which conforms to the standards set forth in the downtown IPOD, which allows an as-of-right FAR of 3. The DPIR barely touches upon this alternative let alone evaluates it.

The Scoping Determination more specifically requires that all the information required in the Scope "be provided in the DPIR for both program alternatives, except where the information would be identical." (Emphasis added.) See, Scoping Determination, p. 4. Instead, each category of information provided in the DPIR focuses on Alternatives 2A and 2B. The benefits of Alternative 1 are not discussed, even though it could potentially alleviate many of the adverse impacts associated with the preferred garage alternative. The DPIR parking management analysis required in Section II.2 of the Scoping Determination also excludes evaluation of Alternative 1. Finally, Alternative 1 is dropped from consideration without any explanation.

The Harvard Club representatives suggested at the June 11, 1990 community meeting that this alternative was not financially viable. The Development and Ten Year Operating Pro Formas required in Sections 1.2(B) and (C) of the BRA Scoping Determination may confirm this assertion. Neither Windsor Place, nor the BRA can check on this claim, however, since the Harvard Club did not submit these required Pro Formas for any garage alterative, according to Mr. Scott Fowler of the BRA in a March 27, 1991 telephone discussion with Ms. Marian Mase-Sabal. Failure to submit these Pro Formas represents a clear violation

of the BRA's Scoping Determination.

The Harvard Club Misrepresents the Public "Benefits" of its Proposed Garage

The BRA requires a description of the public benefits which would presumably result from the Harvard Club's proposed garage. See, Scoping Determination, p. 5. Most of the "benefits" listed on pages I-4 and I-5 of the DPIR are misleading or entirely inaccurate as described below.

1. "Traffic benefits from reduced circling and queuing."

   This "benefit" does not stand alone but must be weighed against the adverse traffic impacts that are likely to occur. See, Chas. T. Main, Inc. Report.

2. "Better awareness of public transportation and car-pooling options by Club members through the formation of a Harvard Club Transportation Committee." This "benefit" is irrelevant to the proposed garage. Besides, what good is better awareness of public transportation after the Harvard Club adds 430 parking spaces to the 1,300-1,500 spaces already available to it?

3. "A project which is beneficial to the City, abutters, and the Club." This "benefit" should be rephrased to read, "A project which is beneficial to ... the Club."

The DPIR Transportation and Environmental Protection Components are Severely Inadequate

Please refer to the attached Chas. T. Main Report for a detailed description of the transportation component deficiencies.

Air Quality

Under Section II.1. of the Scoping Determination, the BRA requires certain air quality analyses that are missing from the DPIR. The DPIR does not include a complete description of the garage exhaust system. Also air quality impacts on adjacent properties are not evaluated for residents whose windows open toward the garage. What adverse air quality impacts might these residents expect given the design of the proposed garage ventilation system?

Lighting Impacts Are Not Evaluated

On page V-17 of the DPIR, the Harvard Club explains that it has retained a lighting consultant. However, none of this consultant's work is included or discussed in the DPIR, nor are

mitigation measures proposed.

Other Items Missing From the DPIR Which Were Required In the Scoping Determination

Section I.7.B. of the Scoping Determination requires the Harvard Club to list all proposed meetings regarding its proposal. None are listed.

Section II.5.C. of the Scoping Determination requires the Harvard Club to designate a liaison among the "proposed project, public review agencies and surrounding businesses and communities." No liaison is named.

THE DPIR FAILS TO ADDRESS THE WINDSOR PLACE JUNE 1990 SCOPING COMMENTS

Windsor Place made an early cooperative effort to put its concerns in writing in June, in its 1990 DPIR scoping comments, which are attached to this letter for your reference. Instead of addressing the project-related impacts of concern to Windsor Place, the Harvard Club so far has responded with an offer of free parking spaces to some Windsor Place residents. This offer does nothing to remedy the legitimate concerns raised by Windsor Place. The Harvard Club has also proposed a notched garage alternative which eliminates 19 to 23 parking spaces. This alternative will not remedy Windsor Place's concerns in any distinguishable way.

The following information requested in Windsor Place's Scoping Comments is missing from the DPIR.

The Harvard Club claims it needs the proposed garage because of its increased membership and its perceived shortage of parking spaces. To determine whether there really is a shortage of parking spaces, Chas. T. Main conducted an independent assessment of parking spaces available to the Harvard Club. See, Chas. T. Main Report, pp. 12-14. Contrary to the Harvard Club's claim that there is a "shortage" of parking spaces, Chas. T. Main found between 1,300 and 1,500 available spaces counted at two separate times on a recent Friday evening. Windsor Place maintains that the Harvard Club should not be granted discretionary approvals for a garage that will seriously impact Windsor Place residents when no need has been demonstrated for construction of the garage.

An underground garage alternative was rejected apparently due to cost considerations, according to Harvard Club representatives present at the June 11, 1990 Community Meeting. Yet in a September 21, 1990 letter to Attorney Lawrence S. DiCara, the architects of the proposed garage, Meyer & Meyer, explained that "the majority of these costs will be incurred as

soon as one or two floors are placed below grade, regardless of whether the remaining floors are above or below grade. See Attachment "C", p. 3. The proposed garage includes 1 1/2 levels below grade (See, DPIR, pp. I-3 and V-9); therefore, the Harvard Club's summary elimination of an underground parking alternative makes little sense, especially since such a garage would eliminate some of the adverse impacts of the proposed 430-car garage alternative. The Harvard Club should be required to explain the differing cost statements on the underground garage alternative.

Windsor Place also asked the Harvard Club to consider all public transportation alternatives. Instead the Harvard Club proposes to encourage use of public transportation, after the garage is built. The Harvard Club's assertion that any benefit will be derived from advocating public transportation after the garage is built defies all logic.

Windsor Place asked that the Harvard Club evaluate a garage alternative that requires no variances and complies with the IPOD FAR of 3. The Harvard Club failed to evaluate this alternative.

The Harvard Club focuses on the questionable benefits of its proposed garage in the DPIR, glossing over the adverse impacts that will be felt by Windsor Place and other neighbors as well as cars travelling in the vicinity. First, the Harvard Club has not accurately assessed transportation-related impacts as discussed in the Chas. T. Main report. Second, the DPIR barely acknowledges the shading and air quality impacts area residents will suffer. In response to Windsor Place's concerns, the Harvard Club merely offers a garage alternative with 19 to 23 less parking spaces. See, DPIR, pp. I-4 and V-18. This alternative will have a negligible effect on remedying any adverse impacts of the garage.

THE DPIR FAILS TO PROVIDE INFORMATION NEEDED TO DEMONSTRATE THAT ALL REGULATORY STANDARDS HAVE BEEN MET FOR THE REQUIRED VARIANCES AND PERMITS

The Harvard Club requires four (4) variances from rear yard, front yard and parapet setback requirements and from the applicable FAR requirement, a conditional use permit for constructing additional parking in a Restricted Parking District, and an IPOD Permit because the proposed garage is located within the "Downtown IPOD." The BRA makes it clear in its Scoping Determination that it intends to incorporate its review of the Harvard Club's zoning relief requests into the Article 31 Development Review Process. See, Scoping Determination, p. 2. The DPIR however fails to demonstrate that the applicable regulatory standards for such zoning relief can be met. Consequently, the DPIR does not warrant a BRA recommendation that

these approvals be granted.

IPOD Permit

The Boston Board of Appeals can not grant an IPOD permit to the Harvard Club unless it finds the following:

(1) the proposed project's benefits outweigh any burdens imposed; and

(2) the proposed project is in substantial accord with applicable provisions of the Downtown IPOD.

The only apparent benefit of the proposed garage is the added convenience and financial gain it will provide for the Harvard Club. The burdens primarily include the discouragement of public transportation use in a restricted parking district, increased traffic in an already congested area (See, Chas. T. Main, Inc. Report), and adverse shading and air quality impacts on the Harvard Club's neighbors.

Simply put, an abundance of parking spaces is available in the immediate vicinity of the Harvard Club; therefore, the perceived benefits of the garage by no means outweigh the obvious and severe adverse impacts that will result from its construction.

Further, the proposed project is not in substantial accord with the Downtown IPOD provisions because it does not conform to FAR requirements, the DPIR provides no justification for violating the FAR requirement, and the proposed garage does not "improve traffic access and circulation" or "protect and improve air ... quality". See, Boston Zoning Code, Article 27D, Section 27D-1. Instead construction of the garage will have a clear adverse effect on these purposes and provisions of the Downtown IPOD.

Conditional Use Permit

The Harvard Club must demonstrate that its proposed garage meets the standards set forth in Sections 6-3 and 6-3A of the Boston Zoning Code before it may be granted a conditional use permit. Chas. T. Main concludes that the Harvard Club's DPIR does not demonstrate compliance with the Section 6-3A standards.

The DPIR also fails to show that the proposed garage meets the Section 6-3 standards. The Harvard Club must show that "[t]he specific site is an appropriate location for such use...."

Given the predicted adverse impacts associated with siting a garage at the proposed location as well as the abundance of

available parking in the immediate area, the Harvard Club's garage proposal fails to meet this standard.

The Harvard Club also fails to demonstrate that "[t]he use will not adversely affect the neighborhood." In addition to the adverse impacts described in these comments, Chas. T. Main describes expected adverse traffic impacts in its report.

Variance Relief

The Harvard Club requires variances from applicable FAR and setback provisions. The Harvard Club has not demonstrated with the information provided in the DPIR that it will comply with the following standards for variances found in Section 7-3 of the Boston Zoning Code:

> (a) That there are special circumstances or conditions, fully described in the findings, applying to the land or structure for which the variance is sought (such as, but not limited to, the exceptional narrowness, shallowness, or shape of the lot, or exceptional topographical conditions thereof) which circumstances or conditions are peculiar to such land or structure but not the neighborhood, and that said circumstances or conditions are such that the application of the provisions of this code would deprive the appellant of the reasonable use of such land or structure;
>
> (b) That, for reasons of practical difficulty and demonstrable and substantial hardship fully described in the findings, the granting of the variance is necessary for the reasonable use of the land or structure and that the variance as granted by the Board is the minimum variance that will accomplish this purpose;
>
> (c) That the granting of the variance will be in harmony with the general purpose and intent of this code, and will not be injurious to the neighborhood or otherwise detrimental to the public welfare.

No detail is provided in the DPIR regarding the Club's setback variance requests, so these requests cannot be evaluated under any of the variance criteria. As for the FAR variance request, no justification whatsoever has been provided in the DPIR for an 8-story, 430-car parking garage, let alone identification of the circumstances peculiar to the land such that strict application of the FAR requirement would deprive the Harvard Club of the reasonable use of its land. The Harvard Club itself states that Alternative 1, which complies with the FAR requirement, would provide parking sufficient to meet the demands

of the Harvard Club. See, DPIR, p. III-19. Therefore, the DPIR does not demonstrate that the garage complies with variance standard "a" listed above.

No description is provided in the DPIR of any "demonstrable and substantial hardship" the Harvard Club will sustain if it does not receive the necessary variances, as required by variance standard "b" listed above.

As described in these comments and the report of Chas. T. Main, Inc., the proposed garage will be injurious to the neighborhood. The Harvard Club has made no attempt to demonstrate compliance with this variance standard "c" listed above.

CONCLUSION

The Harvard Club has not come close to showing that its proposed garage satisfies the regulatory standards for the variances and permits it requires. It also fails to meet the BRA's Scoping Determination. We urge the BRA to issue a negative Adequacy Determination for these reasons. We also respectfully request the opportunity to meet with BRA staff to further discuss these comments and Windsor Place's concerns with this proposal. We appreciate this opportunity to provide our comments on the DPIR and look forward to reviewing the Harvard Club's response to them as well as to the Chas. T. Main, Inc. Report.

Sincerely,

Donna J. Vorhees

Glenn A. Wood

Enclosures

cc: Ms. Marian Mase-Sabal,
Windsor Place Condominium Association
Neighborhood Association of the Back Bay
Boston Civic Design Commission
Back Bay Architectural Commission
City Councilman David Scondras
Mr. Jack Mills
Andrew Hamilton, Conservation Law Foundation
Lawrence S. DiCara, Esq.
David Friend, Chas. T. Main, Inc.

nb.1203.28.djv

CHAS. T. MAIN, INC. REPORT

MARCH, 1991

REVIEW OF DRAFT PROJECT IMPACT REPORT

for the

HARVARD CLUB GARAGE PROJECT

Another copy on BRA

Prepared for:

Windsor Place Condominium Association

Prepared by:

Chas. T. Main, Inc.

March 1991

BACKGROUND

The Harvard Club of Boston (hereafter referred to as the "applicant") is proposing construction of a 430-car, 157,000 square-foot garage on Newbury Street at the site of an existing surface parking lot for the Harvard Club. To assess the potential impacts of the facility, a Draft Project Impact Report (DPIR)[1] has been prepared pursuant to Article 31 of the Boston Zoning Code and a Scoping Determination issued on August 24, 1989 by the Boston Redevelopment Authority (BRA). Among other items, the DPIR contains a traffic management element; a parking management element; a discussion of the facility's impact on pedestrian circulation and loading; a construction management element; a monitoring element; and an air quality assessment of project impact.

This report contains the findings of our review of each of the above elements for its compatibility with the requirements specified by the BRA in its Scoping Determination. It consists of: (a) an evaluation of whether or not the applicant (or his consultant) has employed the proper analysis techniques in estimating the impacts of this project; (b) a determination of whether or not the applicant has in any way "stretched" the assumptions used in his analysis so as to minimize project impacts and the need for mitigation; (c) an assessment of the appropriateness and effectiveness of the mitigation measures proposed for implementation in the DPIR; and (d) recommendations on what additional mitigation measures, if any, should be explored. Because the proposed garage is located in a Restricted Parking District, it must also satisfy the conditional use requirements outlined in Section 6-3A of the Boston Zoning Code. Compliance with these conditions is also evaluated.

The following review is based principally upon the information contained in the Draft Project Impact Report, including its appendices. It is also based upon a thorough review of: (a) the requirements of the Boston Zoning Code[2]; (b) the background data and analyses contained in the Prudential Center Redevelopment Draft and Final Project and Environmental Impact Reports and their appendices[3]; and (c) the recommended Back Bay transportation plan contained in the document, "Transportation Strategies for the Back Bay"[4].

TRAFFIC MANAGEMENT ELEMENT

The traffic impact analyses required by the BRA and performed by the applicant consisted of the following basic elements--common to all site traffic access/impact studies:

1. Description of existing traffic volumes during the selected peak traffic hours **(DPIR, Section 2.0, Existing Conditions)**;

2. Estimation of "no-build" traffic volumes in the selected design year **(DPIR, Section 3.0, Background Development - 1994 No-Build Conditions)**;

---

[1]"Harvard Club Garage Draft Project Impact Report", prepared for The Harvard Club of Boston by HMM Associates, Inc., February 1991.

[2]Specifically *Section 6-3A*, Additional Conditions Required for Approval of Parking Facilities in a Restricted Parking District, and *Section 31-6*, Development Review Components - Transportation Component.

[3]Prudential Center Redevelopment Draft and Final Project and Environmental Impact Reports, Volumes I and II; Appendix A: Transportation Access Plan; and Appendix B: Environmental Impacts; prepared by the Prudential Property Company, Inc. for the Boston Redevelopment Authority and Massachusetts Executive Office of Environmental Affairs, April and November 1989.

[4]"Draft Transportation Plan - Transportation Strategies for the Back Bay", prepared for the Boston Transportation Department by Cambridge Systematics, Inc., et al., July 1990.

3. Estimation of project or site traffic volumes and their distribution/assignment to the study area street network;

4. Estimation of projected "build" traffic volumes in the selected design year (**DPIR, Section 4.0, Project Impacts**); and,

5. Performance of capacity analyses for existing, design year no-build, and design year build alternatives, with and without mitigation in place.

Following is a brief description of the data used, assumptions made, and conclusions reached by the applicant at each step of the above process.

Existing Peak Hour Traffic Conditions

Overview

The overall purpose of a traffic impact analysis is to estimate the "worst case" traffic situation that can be expected to occur within an hour period during a *typical* day in the year the proposed facility is scheduled to open (the "design" year). The peak hour during a typical day in the design year is called the design hour. As described by the American Planning Association:

> *For purposes of a traffic impact analysis, it is important to emphasize that worst case refers to the typical, most frequently encountered case and not necessarily to the absolute worst case. For example, the absolute worst case during a year may occur on a Saturday during the Christmas season. A typical worst case traffic situation is likely to occur during peak hour traffic on a weekday... There are two situations that may classify as the worst case: the peak hour of site-generated traffic plus the adjacent through traffic during that hour; or, conversely, the peak hour of adjacent through traffic plus the site-generated traffic during that hour.*[5]

Traffic consultants usually do not have much latitude in choosing when to take traffic counts. Adjustments to peak hour traffic counts, therefore, are commonly made to account for the variation in traffic volumes in an area by day of the week and month of the year.

Weekday turning movement counts at the five (5) intersections targeted for analysis in the designated study area were taken during the A.M. period of 7:00-9:00 and the P.M. peak period of 4:00-6:00. From this data, the peak weekday A.M. and P.M. hours of traffic were determined to be 8:00-9:00 and 5:00-6:00, respectively. Adjustments to these A.M. and P.M. weekday peak hour counts were made to account for: (a) the inhibiting effect that construction on the Harvard Bridge was having on peak period traffic volumes in the corridor; and (b) the fact that the counts used were taken during different months of the year (i.e., May, November, December), as well as in different years (1989 and 1990). The applicant opted to analyze conditions during true "worst case" conditions by adjusting the weekday A.M. and P.M. peak hour counts to reflect *peak* month conditions rather than a *typical* month.

Weekend (i.e., Saturday) peak hour volumes were not taken directly at the targeted intersections, but rather estimated as a percentage (84 percent) of weekday P.M. peak hour traffic volumes in the study area. No traffic counts were taken or analyses performed of conditions existing during periods affected by special events (i.e., Red Sox games, or events at the Hynes Convention Center).

---

[5]Froda Greenberg and Jim Hecimovich, "Traffic Impact Analysis", American Planning Association, Planning Advisory Service, Report Number 387, pp. 7-8.

Comment

While we agree with the need to make the above adjustments, it is not clear from the data presented by the applicant in Appendix D of the DPIR how the adjustments were actually made. **Table 1** below compares the "unadjusted" traffic count data collected by Howard/Stein-Hudson Associates at the Commonwealth Avenue/Massachusetts Avenue intersection with the "adjusted" DPIR P.M. peak hour traffic volumes. As can be seen from the table, the DPIR traffic volumes "(c)" represent an upward adjustment of the base turning movement counts "(a)". The pattern of that adjustment (ratio c/a), however, is not necessarily consistent with that suggested by the BTD counts "(b)". Comparable "upward adjustments" were made to the "base" turning movement counts at the other study area intersections to arrive at appropriately "adjusted existing" traffic volumes. While there appears to be some pattern of adjustment in the factoring of these base counts, it is not clear on what basis the resulting increases were made--i.e., (a) what increases in traffic were assumed to result from the re-opening of a four-lane Harvard Bridge; (b) what increases resulted from seasonal adjustments to the base counts[6]; or (c) what increases, or decreases, if any, could be explained by other "developments" in the study area since the 1981 BTD traffic counts used as the basis for adjustments were taken.[7] **The applicant should clarify the basis for these adjustments in the FPIR.**

Table 1
P.M. PEAK HOUR TRAFFIC VOLUMES*
Commonwealth Avenue/Massachusetts Avenue

			Comm. Ave. EB			Mass. Ave. SB			Comm. Ave. WB			Mass. Ave. NB		
			L	TH	R	L	TH	R	L	TH	R	L	TH	R
A. Howard/Stein-Hudson Asso.**	Thurs.	12/1/88	83	47	253	64	557	16	61	125	33	8	287	53
B. Boston Trans. Dept. (BTD)**	Thurs.	1/28/81	116	88	266	118	985	62	110	72	149	61	932	108
C. DPIR, Figure III-3	–	–	104	59	316	128	1233	36	115	236	63	26	1026	176
Ratio B/A			1.4	1.9	1.1	1.8	1.8	3.9	1.8	0.6	4.5	7.6	3.2	2.0
Ratio C/A			1.3	1.3	1.3	2.0	2.2	2.3	1.9	1.9	1.9	3.3	3.6	3.3

* P.M. peak hour assumed to be 5:00-6:00 P.M. for all counts.
** See Harvard Club Garage DPIR, Appendix D, Traffic Volume Worksheets.

While the applicant has responded to the BRA's request for information describing peak weekday and Saturday traffic conditions, there is no information in the DPIR to describe existing (or design year) traffic volumes (or levels of service) for "periods affected by special events (i.e., Red Sox games)" as requested by the BRA.[8] Data in the Final Project Impact and Environmental Report for the Prudential Center Redevelopment Project suggests strongly, in our opinion, that several of the analysis intersections for this study would be affected substantially (5-10 percent higher P.M. peak hour traffic volumes) by special events at the Hynes Convention Center.[9] Given the start times for Red Sox night games, there is good reason to believe that the combination of existing peak hour (commuter) traffic volumes with the arrival

[6]No data was found in Appendix D to indicate the appropriate monthly factors for the seasonal adjustment of traffic counts in the study area.

[7]Previous evaluations of traffic conditions in the study area suggest that **vehicle** trips during the P.M. peak period have remained relatively stable since 1984, despite an increase in **person-trips** to the area. It is suspected that this condition is a reflection of the very tight parking supply in the area; an increase in public transit mode share; an increase in walk/other mode shares (i.e., size of the captive market); increases in ride-sharing (i.e., increase in auto occupancy); and/or a "spreading" of the peak hour. This finding suggests that the 1981 BTD turning movement counts represent a reasonable basis for adjusting the base counts **without other adjustments** except those warranted by seasonal differences in traffic volumes.

[8]See BRA, "Scoping Determination for the Harvard Club Garage Project", July 12, 1989, p. 6.

[9]See Prudential Center Redevelopment FPIR/EIR, Volume I, Table 4-7, p. 4-11.

of Red Sox game parkers would produce roadway network volumes even greater than those associated with Convention Center activity. **The applicant should provide this important information and explain why this requested analysis of special event conditions has been omitted.**

Estimation of "No-build" Traffic Volumes in the Design Year

Overview

To estimate study area traffic volumes in the design year (1994) without the proposed garage, estimates of future "no-build" traffic were made by combining: (a) anticipated increases in peak hour traffic likely to be generated by other planned developments in the study area, with (b) likely increases in regional or through traffic through the design year, and adding the resulting additional traffic to existing traffic volumes. The traffic analysis performed for the Prudential DPIR/DEIR was used as the source of data for estimating the additional traffic associated with other planned study area developments.[10] And consistent with the Prudential DPIR/DEIR, a 0.5 percent annual growth rate was assumed when estimating general non-project-specific growth in traffic.[11]

Comment

The procedures and assumptions used by the applicant in estimating 1994 no-build traffic volumes at study area intersections are in keeping with accepted practices.

Estimation and Distribution of Site Traffic Volumes

Overview

The applicant has indicated that no expansion of the Harvard Club's facilities are planned, and that the principal purpose of the proposed garage is to meet the Harvard Club's parking needs on-site. While meeting these needs would only require approximately 140 spaces, the applicant has proposed construction of a garage containing 430 spaces--approximately 290 more than "needed" by Club users.

To estimate the number of new trips attracted to the 430-space garage during the design hours, the applicant assumed that: (a) no new trips would be generated during the peak hours analyzed; (b) the total number of trips generated by Alternatives 2A and 2B would be equal to the number of spaces available under each scenario; (c) all short-term spaces would be used by shoppers and all long-term spaces by non-residents; and (d) the peak hour trip rates for different users would be the same as those derived in the Prudential DPIR/EIR. The additional vehicle trips entering and exiting the new garage estimated under these assumptions were then added to the existing street network on the basis of trip distribution assumptions used in the Prudential Center Redevelopment DPIR/EIR. It is interesting to note that although the Harvard Club mentions a modification to the proposed garage design that would eliminate 19-23 parking spaces (DPIR, p. I-4), the traffic impacts of this smaller garage (407-411 spaces) were not analyzed. The effect of this new design on traffic volumes will be negligible, however, and will not affect the conclusions we reach below.

Comment

We believe the applicant has applied reasonable assumptions in his estimation of the likely number of additional vehicle trips that would be attracted to the garage during peak hours under "worst case"

[10]See Prudential Center Redevelopment DPIR/DEIR, Volume III, Transportation Access Plan, Table III-42, p. III-113.

[11]Ibid., p. III-117.

conditions. We also reviewed the basis used for site trip distribution and find it to be appropriate for this study. The resulting number and distribution of site-generated trips contained in Figures III-10 through III-12 in the DPIR were found to be correct.

Estimation of "Build" Traffic Volumes in the Design Year

Overview

Using: (a) the "adjusted" existing traffic volumes; (b) anticipated increases in traffic due to new developments in the study area; (c) a 0.5 percent non-site traffic growth rate; (d) estimates of the likely number of new peak hour trips attracted under several scenarios to the proposed 430-space garage; and (e) an appropriate site trip distribution/assignment matrix, the applicant developed a "build" traffic flow network for the design year (1994).

Comment

Notwithstanding the concerns noted above, the applicant did properly combine his estimates of existing, 1994 no-build, and site-generated traffic to arrive at reasonable estimates of anticipated "build" traffic volumes at each of the five analysis intersections. These traffic volumes served as the basis for the capacity and level of service analyses that were performed.

Capacity and Level of Service Analyses

Overview

To assess the "quality of traffic flow", capacity and level of service analyses were performed at each of the analysis intersections using the existing, 1994 no-build, and 1994 build (two scenarios) traffic volumes in combination with information on intersection geometry, signal phasing and timing, arrival type, conflicting pedestrian movements, and peak hour factors. The analyses were performed using procedures outlined in the 1985 Highway Capacity Manual[12] and reflected in the CINCH traffic engineering software package.[13]

Under HCM procedures, level-of-service (LOS) at an intersection is related to delay (expressed in seconds), not to the intersection volume/capacity (V/C) ratio used by other methodologies. Where oversaturation does not occur, the HCM is the preferred methodology for calculating signalized intersection capacity and level of service. Although the HCM methodology has limitations and deficiencies, it is preferred over alternate LOS methodologies whenever conflicting turning movements, parking and pedestrian conflicts, bus blockages, and signal progression, timing, and cycle length have an important influence on intersection capacity and congestion.[14]

[12]Transportation Research Board, Highway Capacity Manual, Special Report 109; National Research Council, 1985.

[13]Developed by Daniel Beagan while with the Central Transportation Planning staff, Boston, MA.

[14]For an excellent discussion of the differences between available intersection capacity/LOS methodologies, see John F. Gould, "Comparing the 1985 HCM and the ICU Methodologies", in ITE Journal (August 1990), pp. 35-39. Interestingly, the level of service analyses for the Prudential Redevelopment Project used the Critical Movement Analysis method defined in Transportation Research Circular Number 212, January 1986. This methodology utilizes V/C ratios as the basis for defining LOS--not delay--and is not generally recommended for use in downtown settings because it assumes optimal signal operation and timing and fails to account for time lost to the inefficiencies of signal coordination systems, pedestrian crossing times, and other factors.

The capacity and level of service of signalized intersections has been the subject of much research in recent years.[15] The 1985 Highway Capacity Manual procedures for analyzing signalized intersections were developed in response to the inadequacies of existing methodologies. In general, the HCM is structured in a manner such that five modules are used in the calculation of capacity and LOS. In the HCM, these modules or worksheets are labeled "input", "volume adjustment", "saturation flow" adjustment, "capacity analysis", and "level of service". As can be seen from the Harvard Club Garage DPIR, Appendix E (LOS Calculations), the CINCH computer program used by the applicant for this analysis is structured in the same fashion as the HCM.

Under the HCM methodology used by the applicant, level of service is directly related to a delay value. This delay value consists of a uniform delay component and random, or incremental, delay component. It is computed in the "level of service" worksheets, where the average stopped delay per vehicle is estimated for each lane group, and then averaged for approaches and the intersection as a whole. Both uniform and random delays are determined using equations developed for the HCM. These delays are then adjusted to account for the arrival type, type of signal, and lane group volume/capacity ratio (v/c).

Lane group v/c ratios exceeding 1.20 should not be used to determine average delays or LOS because of the limitations of the delay algorithms. Caution is also recommended by the HCM when calculating delays using lane group v/c ratios exceeding 1.00. The HCM is perfectly clear on the limitations of the delay equation:

> *The equation yields reasonable results for values of X (v/c ratios) between 0.0 and 1.0. Where oversaturation occurs for long periods (>15 minutes), it is difficult to accurately estimate delay, because spillbacks may extend to adjacent intersections. The equation may be used with caution for values of X up to 1.2, but delay estimates for higher values are not recommended. Oversaturation, i.e., X>1.0, is an undesirable condition that should be ameliorated if possible.*[16]
>
> *Where the critical v/c ratio is greater than 1.00, this is an indication that the overall signal and geometric design have inadequate capacity for the existing or projected flows. Improvements that might be considered include:*
>
> 1. *Basic changes in intersection geometry (number and use of lanes);*
> 2. *Lengthening the signal cycle;*
> 3. *Changing the signal phase plan.*[17]

HCM guidance on situations involving high v/c ratios continues as follows:

> *Where both delay values and v/c ratios are unacceptable, the situation is most critical. Delay is already high, and demand is near or over capacity. In such situations, the delay may increase rapidly with small changes in demand. The full range of potential geometric and*

[15]For a good summary of the factors important to intersection capacity and LOS, see Robert W. Stokes, "Comparison of Saturation Flow Rates at Signalized Intersections", ITE Journal (November 1988), pp. 15-20; also, Robert W. Stokes, "Some Factors Affecting Signalized Intersection Capacity", ITE Journal (January 1989), pp. 35-40.

[16]1985 Highway Capacity Manual, Chapter 9, Signalized Intersections, pp. 9-19.

[17]Ibid., pp. 9-20.

> *signal design improvements should be considered in the search for improvements to such cases.*[18]

The limitations of the delay formula under oversaturated conditions has also been widely discussed in the traffic engineering literature. As noted by Akcelik,

> *Although traffic engineers do not design for oversaturation... the limitations of this formula are often forgotten and the formula misused in practice (e.g., in evaluating alternative designs or in stating benefits from improvements to an existing oversaturated intersection).*[19]

Comment

We have reviewed carefully the input data and adjustment assumptions used by the applicant in evaluating the capacity and LOS at each of the five study area intersections under existing, 1994 no-build, and 1994 build traffic conditions. Unfortunately, sound technical analyses and reliable results are not based solely on compliance with the procedures of a particular methodology. We believe the results of the applicant's operational analyses and his conclusions are seriously flawed for the following three reasons.

1. *Justification for Future Conditions on Massachusetts Avenue*

We believe the applicant has purposely manipulated the assumptions used in his analysis so as to lessen the estimated impact on traffic flow of the proposed facility. This conclusion is based upon a comparison of the analysis and findings presented in a *draft* DPIR (September 1990) made available by the applicant with the results contained in the *official* DPIR (February 1991) that is the subject of this review.

In the *draft* DPIR (September 1990), the applicant states the following:

> *According to the Boston Transportation Department (BTD), the only roadway improvement under consideration in the study area is a proposal to improve Massachusetts Avenue to allow two lanes of traffic in each direction. As part of this plan, consideration will be given to making the left turn from Massachusetts Avenue northbound onto Newbury Street and the Massachusetts Turnpike on-ramp legal. These preliminary proposed improvements have not been included in the analysis because they have not yet been approved. If approved, it is anticipated that the improvements will have only a minor impact on traffic conditions resulting from the Harvard Club Garage. Overall, these proposed changes should have a beneficial impact on traffic in the study area. (Draft DPIR, p. III-14)(emphasis added)*

Based on the level of service analyses performed in the *draft* DPIR (September 1990), the applicant concludes:

> *The traffic impacts associated with the proposed project are minimal. Only one intersection shows a noticeable decrease in LOS due to the project. At this intersection (Massachusetts Avenue/Newbury Street) the LOS drops from LOD D to LOD E during the A.M. peak hour under Alternative 2A. Defining the timing signal at this intersection to accommodate the increased traffic will result in a return to no-build conditions (LOS D, 35.6 seconds of delay). (Draft DPIR, p. III-35)*

---

[18]Ibid. p. 9-32.

[19]See Rahmi Akcelik, "The Highway Capacity Manual Delay Formula for Signalized Intersection", ITE Journal (March 1988), pp. 23-27.

Notwithstanding the applicant's incorrect reference to the proposed improvement as two lanes in each direction (it would be 3 lanes directional), both the **status** and **effectiveness** of this proposal changes in the *official* DPIR (February 1991):

> *According to the Boston Transportation Department (BTD), the only roadway improvement under consideration in the study area is a proposal to improve Massachusetts Avenue to allow three lanes of traffic in each direction. As part of this plan, consideration will be given to making the left turn from Massachusetts Avenue northbound onto Newbury Street and the Massachusetts Turnpike on-ramp legal. These proposed improvements have been included in the analysis for both the No-Build and Build conditions. (Official DPIR, p. III-14)* **(emphasis added)**

Based on the LOS analyses presented in the *official* DPIR (February 1991), the applicant now concludes:

> *Using the 1994 No-Build peak hour volumes, the level of service for each intersection was calculated as shown in Table III-4. As can be seen, future traffic operations in the study area deteriorate slightly from existing conditions. However, level of service along Massachusetts Avenue improves dramatically due to the proposed BTD improvements on Massachusetts Avenue. (Official DPIR, p. III-14)*
>
> *Using the 1994 Build traffic volumes, level of service was analyzed for each of the study area intersections. Table III-7 shows the results of this analysis. The analysis showed that there would be no changes in LOS at any of the intersections under either Build alternatives. The only change would be slight increases in the average delay. (Official DPIR, p. III-21)*

The results of the LOS analyses performed by the applicant for both the *draft* DPIR (September 1990) and *official* DPIR (February 1991) are provided in **Tables 2** and **3**, respectively.

The only major difference between the *draft* DPIR (September 1990) and *official* DPIR (February 1991) is the applicant's assumption that Massachusetts Avenue will allow three lanes of traffic in each direction in 1994; versus the two lanes (plus on-street parking) that now exist. Why was this very critical change in roadway capacity made by the applicant?

A review of the LOS calculations contained in Appendix E to the *draft* DPIR (September 1990) indicates that unacceptable delay values and v/c ratios greater than 1.0 could be found at *all* of the analysis intersections, except Massachusetts Avenue/Commonwealth Avenue WB, under 1994 no-build and build conditions. These values indicate oversaturated conditions. For the reasons described earlier, it is simply not meaningful to compare delay values estimated under oversaturated conditions, to assume that every LOS F condition is equal to every other LOS F condition, and to conclude that there is subsequently no impact or need for mitigation. In sum, the analysis results and conclusions reached by the applicant in the draft DPIR (September 1990) were meaningless.

As also suggested in the earlier discussion of the HCM's limitations, one way to deal with lane group v/c ratios greater than 1.0 is to implement "basic changes in intersection geometry (number and use of lanes)." Perhaps the applicant recognized the technical inadequacies of the draft DPIR analyses and was simply responding by instituting one of the improvements suggested by HCM guidance. However, where is the justification for this suspicious change in assumptions? We are not aware that the status of any proposed improvements in the Massachusetts Avenue corridor has changed since the *draft* DPIR (September 1990). As the applicant himself states in the *official* DPIR (February 1991), the proposal to make Massachusetts Avenue 3 lanes in each direction is "the only roadway improvement under consideration" by the BTD in the study area. Being under consideration is not the same as approved and programmed for implementation.

Table 2

COMPARISON OF INTERSECTION LOS UNDER EXISTING, 1994 NO-BUILD, AND 1994 BUILD TRAFFIC CONDITIONS (Draft DPIR)

		Existing		1994 No Build		1994 BD Alt. 2A		1994 BD Alt. 2B	
Intersection	Peak Hour	LOS	Avg. Delay (Sec./Veh.)	LOS	Avg. Delay (Sec./Veh.)	LOS	Avg. Delay (Sec./Veh.)	LOS	Avg. Delay (Sec./Veh.)
#1: Charlesgate East/	AM	F	142.0	F	177.4	F	177.3	F	177.3
Commonwealth Avenue	PM	F	64.2	F	104.6	F	104.4	F	104.5
Westbound	SAT	E	40.6	F	69.3	F	69.2	F	69.1
#2: Charlesgate East/	AM	F	183.4	F	214.4	F	216.6	F	215.0
Commonwealth Avenue	PM	F	186.0	F	250.9	F	>300.0	F	291.9
Eastbound	SAT	E	47.6	F	66.1	F	68.1	F	74.5
#3: Massachusetts	AM	C	18.4	D	34.9	E	42.8	D	36.9
Avenue/Newbury St.	PM	E	48.7	F	104.3	F	113.6	F	114.3
	SAT	C	17.9	D	32.5	D	34.2	D	39.4
#4: Massachusetts Ave./	AM	D	36.5	F	83.2	F	93.6	F	88.4
Commonwealth Avenue	PM	F	90.2	F	>300.0	F	>300.0	F	>300.0
Eastbound	SAT	B	11.5	C	16.0	C	18.8	C	19.4
#5: Massachusetts Ave./	AM	B	6.9	C	18.5	C	18.7	C	18.6
Commonwealth Avenue	PM	D	37.7	D	39.4	E	40.6	D	40.0
Westbound	SAT	B	9.4	B	12.6	B	14.6	B	13.0

Table 3

COMPARISON OF INTERSECTION LOS UNDER EXISTING, 1994 NO-BUILD, AND 1994 BUILD TRAFFIC CONDITIONS (Official DPIR)

		Existing		1994 No Build		1994 BD Alt. 2A		1994 BD Alt. 2B	
Intersection	Peak Hour	LOS	Avg. Delay (Sec./Veh.)	LOS	Avg. Delay (Sec./Veh.)	LOS	Avg. Delay (Sec./Veh.)	LOS	Avg. Delay (Sec./Veh.)
#1: Charlesgate East/	AM	C	15.3	C	18.2	C	18.2	C	18.2
Comm. Ave. WB	PM	C	17.7	C	18.6	C	18.7	C	18.6
	SAT	B	12.8	B	13.5	B	13.5	B	13.5
#2: Charlesgate East/	AM	F	130.8	F	143.7	F	146.3	F	144.5
Comm. Ave. EB	PM	F	149.0	F	174.9	F	294.3	F	216.3
	SAT	D	39.6	E	46.7	E	48.8	E	55.4
#3: Mass. Ave./	AM	C	18.4	B	10.8	B	13.3	B	11.9
Newbury St.	PM	E	48.7	D	31.4	D	32.6	D	33.3
	SAT	C	17.9	C	16.3	C	16.9	C	17.8
#4: Mass. Ave/	AM	D	36.5	B	11.0	B	11.6	B	11.2
Comm. Ave. EB	PM	F	90.2	B	9.2	B	10.4	B	10.1
	SAT	B	11.5	B	6.8	B	7.2	B	7.5
#5: Mass. Ave/	AM	B	6.9	A	4.8	A	4.9	A	4.8
Comm. Ave. WB	PM	D	37.7	B	9.2	B	9.2	B	9.2
	SAT	B	9.4	B	7.2	B	7.4	B	7.3

Unless evidence can be provided that this roadway improvement is indeed approved and scheduled for implementation by 1994, we can only conclude that the applicant has adopted this assumption for his convenience only to deal with the oversaturation (lane group v/c ratios exceeding 1.0) that was found to be so prevalent under the conditions assumed in the draft DPIR (September). The applicant should provide in the FPIR the basis for his critical assumption that Massachusetts Avenue will be 3 lanes directional by 1994.

2. Justification for Other HCM Analysis Assumptions

The HCM approach to characterizing traffic conditions and intersection LOS is very sensitive to events such as double-parked delivery trucks and cars, and jaywalking and parking movements along the curb which are commonplace in the study area. A recent study of conditions in the Back Bay found that these factors contribute greatly to congestion and must receive very careful consideration when used in the application of standard traffic engineering analysis methods.[20] **The applicant should provide evidence to support his use of the typically "standard" assumptions he has made in the analysis regarding these important factors.**

3. Justification for Use of HCM Procedures

Last, but by no means least, the HCM method was designed for use in estimating the level of service at isolated intersections or bottlenecks. It is difficult to use, if not completely inappropriate, as a stand-alone tool in complex downtown networks where bottleneck locations overlap. The only analysis tool capable of realistically describing and evaluating *all* of the operational conditions experienced in an urban street network environment like the Massachusetts Avenue corridor with closely spaced, coordinated traffic signals is the TRAF-NETSIM simulation model.[21] **The applicant should demonstrate that his use of the HCM procedures accurately account for the peak hour queues and spillover between intersections known to occur on Massachusetts Avenue under saturated conditions.**

In conclusion, we believe that the Traffic Management Element of the DPIR for the proposed garage does not adequately comply with the requirements established by the BRA in its Scoping Determination letter of August 24, 1989. Anticipated traffic volumes and resulting levels of service under special event conditions have not been estimated. The applicant has also failed in the DPIR to provide an accurate assessment of the likely project impacts. This results, in large part, from his selection of the HCM methodology to perform the requested operational analyses and his use of unsupported analysis assumptions. The applicant has not provided sufficient evidence to satisfy the BRA's scoping requirement that the analyses of project impacts properly "reflect mid-block congestion resulting from double-parking and other obstructions, pedestrian conflicts, queuing from one intersection to another, servicing and loading, and other operational delays". By failing to understand the limitations of the analysis methodology selected, the applicant has failed to properly interpret the results of the LOS analyses and potentially underestimated the need for mitigation measures. **The applicant should provide in the FPIR an appropriate evaluation of the impact on traffic flow of the proposed garage that responds to the above deficiencies so that a realistic comparison of "build" and "no-build" traffic conditions can be made.**

---

[20]See L.G. Burgin and R.A. Lepore, "Transportation Strategies for the Back Bay in Boston: Data Collection and Analysis", a paper presented at the 69th Annual Meeting of the Transportation Research Board, January 1990.

[21]For a comprehensive comparison of the TRAF-NETSIM method with other techniques, see Shui-Ying Wong, "TRAF-NETSIM: How It Works, What It Does", ITE Journal (April 1990), pp. 22-27; also, A.K. Rathi and A.J. Santiago, "The New NETSIM: TRAF-NETSIM Simulation Program", a paper presented at the 68th Annual Meeting of the Transportation Research Board, January 1989.

PARKING MANAGEMENT ELEMENT

In its scoping requirements for this element of the DPIR, the BRA requested that the applicant (a) provide an overview of parking supply and demand by user type (private, commercial, residential) within the entire Back Bay Resident Parking District; (b) estimate the changes in parking supply likely to occur by 1994; (c) describe how the number and allocation of parking spaces in the proposed garage is intended to satisfy the needs of not only Harvard Club members, but other users as well; and (d) provide a description of the proposed garage layout/circulation and operations management plan. This information is essential in determining whether or not the proposed project satisfies the conditional use requirements for parking facilities in a restricted parking district contained in Section 6-3A of the Boston Zoning Code.

Existing Parking Conditions and Proposed Garage Parking Space Allocation

Overview

As requested, the applicant reviewed and summarized the most recent inventory of parking spaces available from the Boston Transportation Department. Using the Back Bay Resident Parking District as its geographic study area, the applicant laments the number of public spaces "privatized or lost" to residents during the past three years, and speculates that more public spaces will be eliminated in the future. It is also noted that there has been a significant increase during the past decade in the number of vehicles owned by Back Bay residents. According to the applicant these trends, in combination with the fact that "there are no future changes anticipated in the off-street parking supply" in the Back Bay Resident Parking District," make parking availability and the construction of the garage more critical."[22]

The applicant then describes the three-parking-space allocation scenarios suggested for analysis by the BRA. As stated by the applicant, these scenarios are reviewed, "for the purposes of gauging variations in potential traffic impacts of the proposed project..."[23]

Comment

For a new parking facility to be feasible, it must meet the existing or projected future demands of an identifiable set of intended parkers (Harvard Club patrons, retail patrons, residents, others) who have employment, shopping, or residential destinations within reasonable walking distance of its location, and who have limited parking alternatives within this same area.

The information presented by the applicant in the DPIR fails to demonstrate that there is an existing or projected demand by potential parkers within the trade area of the site that this sized garage could satisfy. Two major deficiencies should be addressed by the applicant. First, we are confused by the applicant's use (per BRA instructions) of the Back Bay Resident Parking District as the boundaries for the garage trade area. If the Prudential Center Redevelopment Project includes the Harvard Club Garage in its evaluation of off-site parking supply and utilization[24], we believe the Prudential Center and other off-street parking facilities should be included in the Harvard Garage study area. **The applicant should establish more realistic parking study area boundaries based on walking distances and time than the Back Bay Resident Parking District.**

---

[22]Harvard Club Garage DPIR, p. III-37.

[23]Ibid., p. III-37.

[24]Prudential Center Redevelopment Final Project and Environmental Impact Report, Volume I, p. 4-64.

Second, the applicant should provide reasonable estimates of the existing and projected future supply and demand for parking by user type (Harvard Club, patron, commercial, residential) in this trade area. The applicant has not provided this needed level of detail in the DPIR. General statistics are provided on the supply and demand (1987 utilization) for parking by **parking facility type** (private garage, private lot, public garage, and public lot), not **user type.** While user-related information is more difficult to obtain, it is essential to understanding the existing or projected future parking space deficits (if any) faced by different user groups. The size of the proposed garage (total number of spaces), and the allocation of these spaces between different users, should be based on this profile of parking supply/demand and area needs, not other considerations.

It is interesting to note that the DPIR does not contain any information to support the applicant's preference for a 430-parking-space garage. Nowhere is data provided to indicate that the additional parking spaces needed to meet the demands of Harvard Club members when it is operating at or near capacity are not *now* available in nearby lots or garages. Where also is the evidence that there are not *now* enough off-street parking spaces available when needed by Back Bay residents? Where are Club members and area residents parking now? According to a recently-completed Draft Transportation Plan for the Back Bay, the problem of residential overnight parking is more related to parking rates than availability:

> *Condominium conversions and rising incomes have led to a general increase in auto ownership. At the same time, there are no opportunities to expand the Resident Permit Parking Program to alleviate this increased demand with new on-street parking spaces. As a result, the number of automobiles owned by residents and currently parked on-street exceeds by about 50 percent the number of designated on-street resident permit parking spaces.*
>
> *Many garages are largely empty at night when residential parking demand is highest. However, some rate structures are prohibitive for nighttime resident parking. The BTD should continue to negotiate favorable nighttime parking rates for residents as part of the Transportation Access Plans for new developments.*[25]

Also, while the applicant refers to peak occupancy or utilization figures that may approach capacity, it is important to remember that these figures describe conditions at 12:00 noon, not during off-peak hours when the demands of Harvard Club members and area residents are highest.

Because we believe the issue of parking availability is a very important one, a survey of off-street parking space availability in the vicinity of the Harvard Club was performed on Friday evening, March 15, 1991. Notwithstanding everyone's preference for on-site parking as close to their destination's door as possible, Harvard Club members and guests unable to avail themselves of a parking space in the Harvard Club lot should be willing to park at locations within a 10-minute walking distance of the Club. Using parking inventory information from the Boston Transportation Department/Boston Redevelopment Authority, in combination with a field survey, all existing off-street parking facilities (lots and garages) that are both (a) within 10-minute walking distance of the Harvard Club, and (b) open to the public during evening hours, were identified. Counts were then made at each facility of the number of occupied (unoccupied) parking spaces available during two time periods--6:30-7:30 P.M. and 8:30-9:30 P.M. Friday was selected as the survey day because the DPIR indicated it to be a **non-event** weeknight on which parking demand by Harvard Club members/guests is high (see DPIR, Table III-3). Counts were taken during the 6:30-7:30 P.M. time period to be consistent with the expected arrival of Harvard Club members. Counts were

[25]Boston Transportation Department, "Transportation Strategies for the Back Bay", July 1990, pp. 26-27.

also taken between 8:30-9:30 P.M. so as to "capture" additional Harvard Club members and their guests attending a scheduled St. Patrick's Day function.

The results of the parking survey are presented in **Table 4.** As can be seen, there are currently 7 garages and 5 surface lots (including the Harvard Club lot) that are within a 10-minute walking distance of the Harvard Club and open for public parking during the evening. The garages provide a total of 2,279 parking spaces, while the surface lots contain 517 parking spaces, for a total of 2,796 spaces.

Incredibly, the field survey found between 1,300 and 1,500 **vacant** parking spaces within easy walking distance of the Harvard Club during the survey periods. In other words, almost half of all of the publicly available parking spaces within reasonable walking distance of the Club are available for Harvard Club members or their guests unable to park in the Club's lot. Even if walking time was shortened to six minutes, there would exist between 500 and 550 parking spaces available in the area for Harvard Club users. This number of available parking spaces far exceeds the number of additional spaces that could ever be needed by Harvard Club members and their guests during off-peak hours. Where is the need that would justify a 430-car, eight-level parking garage?

In the absence of data that demonstrates otherwise, we can only conclude that the applicant has not based his determination of feasibility on need--i.e., on existing or projected parking demands that are going unmet--but rather on a desire to minimize the inconvenience incurred by some Harvard Club members who now have to park off-site and walk to the Club. In addition, we can also only conclude that the applicant has not based his determination of garage size on realistic estimates of patronage, but rather on a contrived, financial break-even point (given a specific method of financing, costs of financing, inflation rates, annual income and expenses, debt coverage ratio, etc.) that either assumes the garage will be heavily patronized or "is so heavily subsidized" by other revenue sources that it doesn't matter.

Parking Garage Layout and Management Plan

Overview

The applicant has presented a general circulation concept and layout design for the garage that reflects a sloping floor garage design and locates the ticket booth off of Newbury Street on the eastern portion of the site. A very cursory description of a parking management program is also provided.

Comment

The design and layout of a parking garage is influenced principally by site topography, the location of access streets, site width and length, and slope. By selecting a sloping-floor garage design, the applicant has chosen a fairly common garage arrangement pattern, with the parking aisles parallel to the long dimension of the site. It is a design that typically provides column-free parking and better visibility on each floor. In keeping with good design practices, the circulation pattern in the proposed garage has also been designed as counter-clockwise. Counter-clockwise rotation is desirable for American drivers because it allows a direct view of inner (left) obstructions at ramp turning points.

As acknowledged by the applicant, the ticket booth has also been advantageously located in the back of the site so as to provide sufficient **off-street** reservoir space for entering vehicles while also minimizing potential conflicts with vehicles entering/exiting the adjacent Somerset Garage. We concur with the applicant's findings that there will not be substantial peak period queues of entering vehicles contributing to blocked traffic flow on Newbury Street. The location of the cashier booth will allow sufficient queuing space between the booth and sidewalk, thereby facilitating fee collection while minimizing pedestrian conflicts.

Table 4

SUMMARY OF OFF-STREET PARKING SURVEY
Friday, March 15, 1991

Facility Type	Description	Walk Distance (Ft)	Walk Time (Min)*	Capacity**	Vacant Spaces 6:30-7:30	Vacant Spaces 8:30-9:30
Garage	Danker & Donahue Garage	780	3	500	163	156
	Ron's Parking Garage	1,200	5	32	21	11
	Cheri Garage	1,600	6	501	363	313
	Prudential-South***	2,000	8-10	454	121	93
	Back Bay Hilton	2,100	8	265	87	86
	Prudential-North****	2,400	10	222	184	175
	Church Park Garage	2,400	10	305	250	151
			Total	2,279	1,189	985
Lot	The Harvard Club	100	1	105	29	62
	Boylston/Alright Parking	950	4	31	22	27
	Kenmore Square Lots (4)	1,900	7	191	165	154
	Exeter/Newbury Street	2,500	10	50	28	6
	Ipswich Street	2,500	10	140	96	112
			Total	517	340	361
			TOTAL	2,796	1,529	1,346
			% Vacant		54.6%	48.1%

* Actual walking time between parking facility and the Harvard Club; implies walking speed of between 3.5-4.0 ft/second.

** Indicates number of parking spaces theoretically available to the public during evening hours.

*** Represents those parking spaces located on lower level of South Garage that would be within approximately 10-minute walk distance of the Harvard Club. Entire lower level of the South Garage contains 1,046 public parking spaces.

**** Represents those parking spaces located on lower level of North Garage that would be within approximately 10-minute walk distance of the Harvard Club. Entire lower level of the North Garage contains 406 public parking spaces.

There are two minor difficulties to the applicant's proposed layout scheme, however. The first deficiency relates to the need for two-way parking aisles. The disadvantage in this is that cars have to cross over the opposing lanes upon entering or leaving their parking space. This is minimized, however, by the proposed split-level system that allows a crossover at each floor so that a driver finding one floor crowded or full may cross over to the next floor and attempt to find a parking space there or exit without traversing other floors. A second deficiency lies in the fact that the proposed facility will contain eight levels of parking, including one level below grade. A sloped-floor parking structure should be limited to about six continuous circuits or revolutions because studies have demonstrated that drivers tend to become confused and irritated by repeated turning and driving past occupied parking spaces.[26] Neither of these deficiencies is critical, however, in the sense that it seriously affects the operations or safety in the garage.

However, the applicant also fails in the DPIR to provide any reasonable, much less detailed, description of how the parking spaces in the garage will be managed. As noted earlier, there appears to be no basis founded in parking demand for the total number of allocation of spaces by user analyzed by the applicant. While it is stated that 140 of the 430 spaces will be reserved at all times for Harvard Club members, and that approximately 100 additional spaces will be reserved for residents, the applicant does not indicate how these reserved spaces would be distinguished from the remaining spaces. Where would they be located? Operationally, it would be preferred to keep stalls near the entrance/exit out of active (high-turnover) use, but this it not stated. The applicant also does not indicate how the remaining "shared" spaces would be managed to ensure the availability of sufficient spaces at the times needed for either Harvard Club members or Back Bay residents who desire overnight-only parking (versus monthly leased parking). For example, what happens during Red Sox baseball games when all of the unreserved parking spaces are utilized by game attendees, and neither Club members nor residents wanting a nightly space can access the garage? Is it the applicant's intent to require all commercial parkers to be out of the garage by 6:00 P.M. or to simply not allow any additional commercial parkers into the garage after 6:00 P.M.? Would a 6:00 P.M. restriction be imposed only on days when there are not known Club events that would require more than the 140 reserved spaces? How does the applicant intend to maximize the availability of overnight-only parking for Back Bay residents, and during what period would that parking be available? While Club members and area residents with reserved parking can be identified by windshield stickers, how does the applicant propose to distinguish between commercial and resident overnight-only parkers, particularly if a different rate structure is proposed for these groups?

These questions deserve careful thought and answers. Despite the request by the BRA in its Scoping Determination, the applicant has not provided information in the DPIR describing the "potential overlap in peak accumulation hours of different use types, and discuss(ed) measures which will mitigate conflicts". **A detailed parking management program for each of the parking scenarios--consistent with a financial feasibility determination--should be provided in the FPIR.**

In summary, we do not believe the Parking Management Element of the FPIR complies with all of the requirements established by the BRA in its Scoping Determination. While the proposed layout and circulation concept for the garage is acceptable, the applicant has not provided the BRA and public with a realistic description and assessment of why all of the requested parking spaces in the garage will be needed or how they would be utilized. The parking use scenarios evaluated by the applicant appear to have been developed by the BRA--not the applicant--solely for the purpose of "gauging variations in potential traffic impacts". The results of an off-peak parking survey found a substantial number of available vacant off-street parking spaces within easy walking distance of the Harvard Club. The scenarios evaluated for this element should reflect a *realistic* assessment of potential user needs in a *realistic* trade area, and should be tied to a definitive parking management and financial plan. While basic design issues have been generally well addressed by the applicant, important operational issues have been largely

[26]ITE, "Guidelines for Parking Facility Location and Design", May 1990, p. 19.

ignored. **This project should not be approved until all of the utilization and operational questions posed by the BRA and reiterated above are addressed satisfactorily by the applicant.**

In our opinion, the Parking Management Element of the DPIR should have also contained the information needed by the Board of Appeal to evaluate the proposed garage compliance with the four conditions established under Section 6-3A of the Code for off-street parking facilities in a Restricted Parking District (see below).

In a restricted parking district, the Board of Appeal shall grant a conditional use for an off-street parking facility...only if the Board of Appeal finds that said facility meets one or more of the following conditions.

a. It will serve a traffic demand not adequately provided for by public transportation; or

b. It will replace existing off-street parking spaces in one or more nearby parking facilities, or it will replace legal on-street parking spaces that have been physically eliminated through permanent modifications or demolition; or

c. It is accessory or ancillary to a use which by its nature does not contribute significantly to traffic flows during peak traffic periods; or

d. The facility constitutes a temporary parking lot use of land and that serious intent to reuse the land for an allowed use within a specified period of time has been demonstrated to the satisfaction of the Board of Appeal.

Source: Boston Zoning Code, Section 6-3A

While the applicant may want to provide supporting information in the FPIR, it would be inconclusive from the information now available that the proposed facility *fails* to satisfy all four conditions.

Condition A

As documented in the Prudential Center Redevelopment Draft and Final Impact Reports, the Back Bay/Massachusetts Avenue corridor may be one of the areas best served by transit (light rail and bus) in the entire City. The proposed facility will not accommodate the parking needs of employees, shoppers, visitors, or residents generated by or attracted to any *new development* in the area. It is being constructed to satisfy the demands of existing Harvard Club members and others, many of whom now use public transportation to reach their destinations. If anything, the availability of public parking spaces in a new garage may actually encourage current public transit users back to their autos. This does not represent sound or consistent public parking policy. Does the Harvard Club really believe that it can subsequently encourage club patrons to use the MBTA and carpool to mitigate the garage traffic impacts[27], at the same time it is telling its members that the new garage will provide more than enough parking spaces to accommodate its peak needs? **The proposed garage does not serve a traffic demand--existing or projected--not already adequately served by public transportation.** On the contrary, by providing new parking in the area, it weakens considerably the strong incentive that now exists for drivers in the area to switch to ride-sharing and public transit.

Condition B

A facility can satisfy the second condition above only if it *replaces*--presumably on a one-to-one basis--*existing* off-street parking spaces. For *replacement* to occur, the existing spaces must be physically eliminated prior to the opening of the new facility. Most importantly, they must be *existing* spaces in the sense that they now physically exist and are occupied by parkers of different types. The applicant goes to some length to list the nearby off-street public parking spaces that have been lost or privatized during

[27]Harvard Club Garage DPIR, p. III-35.

the past three to five years. **The proposed garage cannot "replace" these parking spaces because they no longer "exist".** Beyond the 50 public spaces the applicant "anticipates" will be "eventually eliminated", he has failed to identify either the number or location of the existing off-street parking spaces the proposed facility is intended to replace. Any other interpretation of this condition would justify an applicant's request for virtually any number of additional parking spaces at any time in a Restricted Parking District.

Condition C

This condition is perhaps the most difficult to evaluate because there are no standards against which a "significant contribution" can be measured. A significant contribution can be measured in terms of the *absolute number of additional vehicles* contributing to traffic flows during a peak hour; the *percentage of additional traffic* added to traffic flow during a peak hour (e.g., the "10 percent rule"); or *change in levels of service* (e.g., a significant contribution occurs if intersection peak hour LOS worsens with the additional traffic--regardless of the absolute volume or percentage of additional vehicles added). In complex downtown street networks, very small increases in peak hour traffic can have a substantial effect on delay and network congestion. Consequently, LOS (or delay) is typically used to measure the impact of a new facility (garage or development) in a downtown setting.

As discussed previously, however, we believe there are serious questions concerning the applicant's LOS analyses that must be satisfactorily answered before this condition can be evaluated. While we cannot speculate on the applicant's response to our concerns, we would like to voice our strong agreement with the guidelines provided by the Transportation Research Board in the Highway Capacity Manual that "oversaturation is an undesirable condition that should be ameliorated if possible."[28] If the improvements to Massachusetts Avenue cannot be guaranteed, any traffic--regardless of its volume--when added to the peak hour volumes that already represent oversaturated conditions in this corridor would be significant. **By this definition, the proposed garage would contribute significantly to traffic flow during peak traffic periods in violation of this condition.**

Condition D

The proposed garage is not intended to be a temporary facility, so it also fails to satisfy this condition. **We believe the applicant should provide sufficient information in the FDIR--including responses to an assertion above--to allow for proper evaluation of the proposed garage for compliance with Section 6-3A requirements.**

PEDESTRIAN CIRCULATION

Overview

Access to and from the parking levels will apparently be provided by stairways in three corners of the facility. A single elevator--presumably for handicapped access--is provided in the corner of the garage nearest the Harvard Club entrance. Harvard Club members will be able to access the Club either directly from an upper level or basement, private entry or through a remodeled back door. These options will permit Club members to avoid undesirable conflicts with loading/delivery vehicles as well as vehicles entering/exiting the garage. With proper lighting and security, Club members will be able to move safely and quickly to and from the parking garage to Club facilities.

[28] Highway Capacity Manual, p. 9-14.

Comment

In general, we agree with the applicant that the proposed facility will not generate substantial pedestrian traffic along Newbury Street as the result of its commercial/resident spaces. Nevertheless, these parkers deserve the same consideration as Club members. To address their needs, an exit directly to Newbury Street has been placed at the base of the SE stairs[29], and on-site reservoir spaces for queued vehicles provided by locating the ticket booth at the rear of the site. With warning signs and street markings, we believe the applicant will be able to minimize the potential conflicts between these pedestrians and vehicles entering/exiting the garage.

The questions arise, however, from the pedestrian circulation plan submitted in the DPIR. First, good design requires a minimum of one elevator in a garage of over two levels. Is it really the applicant's intent to connect the parking levels by stairs only? Second, how are pedestrians--especially the handicapped (HC)--who are not Club members going to reach street sidewalks? As we mentioned earlier, the proper location and design of HC parking spaces in public facilities is of critical importance. They should be located close to elevators, ramps, walkways, and building entrances. As importantly, curb cuts and elevators should be located so that persons in wheelchairs can access the garage. **The applicant should identify the pedestrian corridor those using the back stairway/elevator will need to traverse to reach Newbury Street and identify how it intends to avoid unsafe conflicts with entering/exiting vehicles or other activities in the loading area.**

LOADING AND INTERNAL CIRCULATION

Overview and Comment

The applicant indicates that construction of the proposed garage will not increase the existing demand for loading space or facilities on the site. We agree with the applicant that the layout of the site should permit emergency service/fire apparatus and vehicles for deliveries and refuse collection to operate in a manner consistent with existing practices. Although not stated in the DPIR, it is assumed that control will be exercised over the time of day at which deliveries are made so that potential conflicts with garage entering/exiting traffic can be avoided. Also, snow removal and storage may present an additional problem not as significant with the existing lot. **The applicant should provide assurances that snow removal and/or snow storage along the available access and service drive areas will not unduly reduce the amount of space needed to safely and efficiently accommodate the turning and loading requirements of delivery vehicles.**

CONSTRUCTION MANAGEMENT ELEMENT

Overview

A **detailed** Construction Management Plan has not been provided by the applicant in the DPIR; it will be developed at a later date and submitted to the Boston Transportation Department (BTD) prior to construction. Nevertheless, preliminary information has been provided describing the estimated maximum number of construction parkers anticipated on-site at any one time; the number of vehicles generated by the workforce; the construction activity schedule; and provisions for worker parking, truck movement volumes and routes to be used by excavation and material delivery vehicles to enter and exit the site;

[29]This stairway is shown in Figure III-19, Pedestrian and Vehicle Circulation, on p. III-38 of the DPIR. This stairway is not shown, however, on Figure V-2, Ground Floor and Typical Plan, on p. V-10!!

staging areas and their impact on plans for street and sidewalk closure; construction work zone/perimeter public safety measured; and temporary "replacement" parking for Harvard Club members.

Comment

In general, we believe that the impact of construction employee vehicle trips on area streets will be negligible and applaud the applicant's decision that no parking be made available on-site for construction workers. We also believe that the number of trucks removing excavated material and delivering steel, etc. will probably also not have a significant impact on street conditions (although our position would change if "refined" estimates indicate substantially larger numbers of trucks during peak hours). As long as the needed staging area can be made available while maintaining a single lane for traffic on Newbury Street, no unsafe worker/pedestrian conditions or undesirable back-ups through the Massachusetts Avenue/Newbury Street intersection should occur.

We do have one concern, however, regarding the proposed truck routes (see DPIR, Figure IV-9) for entering and exiting trucks. If the available turning radii for large trucks is inadequate at an intersection, the truck may encroach upon other travel lanes, temporarily occupying a substantial width of the street throat, and creating a hazardous condition. Under the worst scenario of the construction, on-street parking and narrow streets may preclude large truck movements altogether! We believe there may be insufficient turning radii and room for truck maneuverability at the Hereford Street/Newbury Street intersection given the on-street and double-parking that regularly occurs on these streets. We doubt seriously that large trucks could negotiate the right-angle turn from Newbury Street to Charles Gate East under the conditions that typically exist on these streets. **The applicant should review the proposed truck routes carefully for the adequacy of their turning radii. The need to eliminate on-street parking spaces to facilitate movements along a proposed route should be identified and discussed with the BTD.**

MONITORING ELEMENT

Overview and Comment

A monitoring program is usually established when the mitigation agreed to by an applicant requires the achievement of a specified transit mode share or average vehicle occupancy rate by the users of the proposed development. In that the applicant has not agreed to any mitigation--outside of eliminating eight parking spaces on Newbury Street and reimbursing the City for lost revenues--a monitoring program for this kind of project is meaningless, in our opinion. While information on the vehicle occupancy rate of those using the garage, the types of users, and their trip origins and destinations, will be useful to the applicant in managing the use of (and establishing rates for) parking spaces in the facility, it will not necessarily serve any broader interests.

AIR QUALITY ANALYSIS

Overview

Intersection and garage air quality analyses were performed by the applicant to estimate one-hour and eight-hour CO concentrations under existing (1990) and 1994 no-build and build conditions. The analyses were performed using the EPA MOBILE4 and CAL3QHC computer programs and modeling assumptions consistent with BRA, DEP, and EPA guidance. The analysis results indicate no violations of the one-hour CO NAAQS (35 ppm) at any of the three intersections analyzed. However, exceedances of the eight-hour CO standard (9 ppm) were projected at a number of receptors near the Massachusetts Avenue/Commonwealth Avenue and Commonwealth Avenue/Charles Gate East intersection under both

build and no-build conditions. Overall, the results of the applicant's study, "indicate that exceedances which currently exist will decrease in the future years, and that new exceedance conditions do not result for the project."[30]

Because the predicted 1994 exceedances of the eight-hour CO standard are not worsened by the proposed garage activity, no project-related mitigation is proposed. It is assumed, however, that the Commonwealth's I&M Program will continue to be enforced, and that the City's efforts to optimize traffic signal timing and progression in the Back Bay (and particularly on Massachusetts Avenue) will continue.

With respect to its potential impact on regional air quality, the applicant speculates that the proposed garage will have "a minimal and potentially positive impact on ozone", by reducing the vehicle-miles traveled by those currently "circling" the area in search of parking spaces.

Comment

The air quality methods and protocol used by the applicant for his microscale CO analyses are appropriate for the urbanized setting that was analyzed. We found no evidence that any attempt was made to use background concentrations, meteorological conditions, or other modeling parameters to unduly influence the analysis results. The predicted CO concentrations along Massachusetts Avenue are consistent with (in fact, higher than) those estimated in the Prudential Center Redevelopment Project at common receptor locations (e.g., T-stop and bus stop at Newbury Street intersections).[31] In light of diurnal variation in traffic volumes in the study area, and the sensitivity of air quality modeling methods to input parameters, we concur with the applicant that the proposed garage is likely to have negligible impact on intersection CO concentrations in the study area.

We also found no deficiencies in the garage microscale air quality analysis that was performed. However, no analysis was done of likely interim carbon monoxide concentrations within the proposed facility. Our review of the schematics and perspectives provided in the DPIR suggests that the proposed garage may satisfy recommended code provisions and have sufficient circulation of air in the interior portion to diffuse auto emissions.

> *"For mutual ventilation purposes, the exterior of the structure should have distributed openings on two or more sides. The Recommended Building Code Provision specifies that the area of such openings in exterior walls on a level should be at least 20 percent of the total perimeter wall of each level; that the maximum contiguous closed perimeter should not exceed 60 percent of the total perimeter; that wall area for the purpose of determining the percentage of opening should be based on floor-to-ceiling height not to exceed seven feet; and, that interior wall lines and column lines should be at least 20 percent open, with well distributed openings.*[32]

[30]Harvard Club Garage DPIR, p. IV-8.

[31]Prudential Center Redevelopment FPIR/EIR, Vol. I, p. 5-69.

[32]Parking Consultants Council, "Recommended Building Code Provisions for Open Parking Structures", Washington, D.C., National Parking Association, 1987.

However, there may be cases where a facility meets these recommendations but still requires mechanical ventilation[33] to meet the maximum carbon monoxide requirements of the Federal Occupational Safety and Health Act of 1970 (OSHA). In the underground level of the garage especially, care must be taken to ensure that it is well ventilated, that air is changed frequently, and that there is no accumulation of CO level in excess of OSHA requirements. **This interior air quality issue should be discussed in detail by the applicant in the FPIR.**

[33]This ventilation issue is raised in a letter dated September 21, 1990 from Eric A. Peterson, Meyer & Meyer to Lawrence S. DiCara, Esq., Peabody and Brown.

WINDSOR PLACE CONDOMINIUM ASSOCIATION
SCOPING COMMENTS

JUNE 19, 1990

June 19, 1990

Boston Redevelopment Authority
Boston City Hall, 9th Floor
One City Hall Plaza
Boston, MA 02201

Attn: Mr. Thomas Maistros

Dear Mr. Maistros,

The Windsor Place Condominium presents the following list of issues and concerns regarding the Harvard Club Garage proposal in the Back Bay. The HC claims they need an additional one hundred forty (140) spaces to accommodate their increased membership. The HC should provide the following to demonstrate the need and uses of this project:

Documentation of increased membership.

Last six (6) months history of events showing how many members were served vs. non-members. What time did events begin and end?

How will the short term spaces be utilized during HC functions?

How would a "no build" situation effect HC?

ALTERNATIVES

HC must provide consultant studies upon which the consultants based their conclusion that the proposed garage was the best alternative.

What alternative could be built that would require no conditional use permits and no variances?

Provide detail descriptions of all the alternatives HC has reviewed to satisfy their desire for parking spaces, including all estimated costs for implementing each.

Has the HC investigated:
- All underground design options?
- Other locations where parking is available or proposed?
- Use of existing parking, e.g., Prudential Center and D & D on Newbury Street?
- Public transport options such as busses, MBTA?
- Combinations of any or all of the above?

TRAFFIC ISSUES

The HC must take into account all traffic plans and studies being made in the area and their recommendations. For example HC must acknowledge whatever traffic mitigation is being considered along Mass. Ave in conjunction with the Prudential Center and modify its plans accordingly.

If the HC will be using the additional short term parking spaces during their club events did they compute these additional vehicles in their traffic study?

Are there other parking proposals in the area? If so, what are their impacts and the cumulative impacts of these proposals and the HC proposal?

HEALTH AND SAFETY ISSUES

What effect will the proximity of the garage to the abutters have on our only source of light and air? How will increased NOx and carbon monoxide levels potential effect the health of residents?

How will the Windsor Place outdoor pool be impacted by both air quality and loss of light?

Would this project have any impact on the integrity of adjacent structures and buildings, i.e.,
- Digging and laying of foundation?
- Blasting?
- Construction impacts on abutters?
- Vermin, noise and dust?

Emergency fire and other large equipment must enter and exit through Newbury Street at the Mass. Ave. intersection. In view of this has the HC studied:

- Garage design vs equipment needs?
- Adequacy of turnaround?
- Adequacy of turning space into ally between abutters and garage?
- If equipment must back out are there any design problems in the existing architectural plans?

The HC has made two basic assumptions: there will be no traffic increase during peak hours and the garage will not attract new traffic to the area. HC must substantiate these assumptions.

If these assumptions are completely wrong as they could be, HC's traffic studies must be revised accordingly to reflect accurately the impacts that will be felt by HC's neighbors.

As a result of the recent public meeting at the HC many of these issues were raised. However, after reflecting on the meeting we have had some time to consider them in more detail. We hope that you will take our thoughts into consideration in your review process and will confer with us if you need any clarification.

Yours truly,

Marian Sabal

Marian Sabal
Committee Chairperson

MEYER and MEYER LETTER TO ATTORNEY LAWRENCE S. DiCARA
RE: UNDERGROUND GARAGE ALTERNATIVE

SEPTEMBER 21, 1990

MEYER AND MEYER

ARCHITECTURE
AND
INTERIORS

388A Commonwealth Avenue
Boston, Massachusetts 02215

Phone 617-266-0555
FAX 617-266-2952

September 21, 1990

Lawrence S. DiCara, Esq.
Peabody and Brown
101 Federal Street
Boston, MA 02110-1832

Re: Harvard Club of Boston Garage

Dear Mr. DiCara:

I have been requested to summarize the issues regarding the concept of constructing your proposed parking structure entirely or partially below ground.

Briefly stated, the technical requirements would raise the costs so dramatically that the building could not support itself financially. Below grade parking structures of this size are only seen in conjunction with large, very high price hotels, offices, or condominiums, which in effect subsidize the costs.

The technical considerations are numerous and include:

1. Excavation and related costs.
2. Structural requirements.
3. Fire protection requirements.
4. Ventilation system requirements.
5. Waterproofing.
6. Security.

I will deal with these in order:

1. <u>Excavation</u>

Sheeting must be placed to support the sides of the excavation, and this is often braced by drilling horizontally into the adjacent soil approximately 30 ft. and pumping in a concrete bell anchor. This is not possible here because of the proximity of the Massachusetts Turnpike, the Green Line Subway under Newbury Street, and adjacent buildings. The relatively small size of the site would make lateral cross bracing within the excavation a construction nightmare, and makes a "top-down" slurry wall construction like the Post Office Square Garage practically impossible. Additional costs involve dewatering the excavation

in an area with a high water table and stringent environmental requirements; disposing of large amounts of soil which may be contaminated; and probable claims for settling of adjacent structures.

2. Structural Requirements

A concrete structure to support many stories of earth is much heavier than that to support an above-ground structure. Additionally, the cast-in-place concrete required for retaining walls would be much more expensive and time consuming than the prefabricated structure proposed above-ground.

3. Fire Protection Requirements

The structure of a below-grade enclosed garage must be much more fireproof, and therefore more expensive; and a sprinkler system would need to be installed, and protected from freezing.

4. Ventilation

An enclosed below-grade garage must have a mechanical ventilation system which is not required for an above-ground parking structure. It would also need an emergency smoke exhaust system.

5. Waterproofing

The exterior walls below-grade would need to be waterproofed against a very high static pressure. We have seen the results of failed waterproofing in garages downtown, which include damaged cars and damage to the building.

6. Security

Below-ground parking garages without occupied buildings above them have increased security problems: Witness the Boston Common Garage. We do not know why above-ground structures have fewer problems, but they do, and this represents increased costs for equipment, personnel, vandalism.

Although a complete analysis of soil conditions would be necessary to give a precise estimate, I can safely say that a below ground structure will be a minimum of three times as expensive as an above-ground garage, and conceivably more than six times. Furthermore, the majority of these costs will be incurred as soon as one or two floors are placed below grade, regardless of whether the remaining floors are above or below grade.

Very truly yours,

MEYER AND MEYER, INC.

Eric A. Peterson

Eric A. Peterson

Boston City Council

David Scondras
District 8
725-4225

April 3, 1991

Mr. Homer Russell, Assistant Director
Urban Design and Development
Boston Redevelopment Authority
Boston City Hall, Room 925
Boston, MA 02201

Dear Mr. Russell,

As the City Councillor for District 8, which includes the Back Bay and the Fenway areas, I am writing to express my concerns about the Harvard Club's proposal to build a parking garage on Newbury Street, behind their building. I oppose this project on the basis of the information provided thus far regarding its purposes and impact.

The proposed garage serves a traffic demand that is already adequately served by public transportation. In fact, it will reduce the incentive for people to use public transportation and ride-sharing programs.

The garage may increase traffic flow in the area at a time when we are working hard to reduce it and manage necessary increase in traffic resulting from new developments such as the Prudential and Olmstead Plaza. Gridlock is not unusual on Mass. Ave., and increases in traffic flow which are not absolutely necessary should not be approved unless compelling reasons are presented.

An increase of cars in the area will worsen air quality. Kenmore Square's air quality is among the worst in the state, and even marginal impacts should cause great concern.

I need clarification of the appropriateness of the HCM method for modeling traffic impact. Residents claim that:

> "the HCM method was designed for use in estimating the level of service at isolated intersections or bottlenecks. It is difficult to use, if not completely inappropriate, as a stand-alone tool in complex downtown networks where bottleneck locations overlap. The only analysis tool capable of realistically describing and evaluating all of the operational conditions experienced in an urban street network environment

like the Massachusetts Ave. corridor with closely spaced, coordinated traffic signals is the TRAF-NETSIM simulation model."

I need a demonstration that the procedure used is an appropriate simulation model and took into account the reality of Massachusetts Ave.'s conditions.

I am greatly concerned with several comments by abutters:

a. that no consideration of special events was included in the traffic study. Events at the Mass. Convention Center, Berklee Performance Center, Symphony Hall and Fenway Park cause major disruption of traffic flow and demand analysis.

b. that congestion resulting from double parked cars, jaywalking, and mid-block deliveries is not accounted for in the traffic study. Certainly these behaviors will continue unless the Berklee School of Music and the stores lining Mass. Ave. are moved.

I am also surprised by the proposal that the garage have 410 spaces, since the Harvard Club states that it needs 290. No showing is made that the additional spaces will be reserved for residents, or that there is a way to assure that special event parkers or others will not occupy them if they are reserved for residents in theory.

Finally, I am not convinced that the proposed garage meets one or more of the conditions specified in Section 6-3A of the Zoning Code, related to off-street parking facilities in a Restricted Parking District.

Please carefully review these concerns and those of the residents who would be affected by this project.

Yours truly,

David Scondras
CITY COUNCILLOR